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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,100	03/19/2002	Michel Jurgen	112740-242	8112

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EXAMINER	
MICHALSKI, JUSTIN I	
ART UNIT	**PAPER NUMBER**
2644	12

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/889,100	JURGEN ET AL.	
	Examiner	Art Unit	
	Justin Michalski	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *37* is/are allowed.

6)☒ Claim(s) *19-28 and 30-36* is/are rejected.

7)☒ Claim(s) *29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 19-21, 25-27, 30, and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler et al. (US Patent 5,339,051) in view of Schulman et al. (US Patent 5,609,616).

Regarding Claim 19, Koehler et al. discloses a passive microphone for wirelessly transmitting sound information to a receiving unit (Figure 17, sensor 266) (Koehler disclose sensor can be used as a microphone) (Column 3, lines 26-27), comprising: an antenna (antenna 262) that receives an amount of electromagnetic excitation energy from the receiving unit (unit 250); and a piezoelectric device (264 and 266) (Koehler discloses the invention relates to a resonator (Column 1, lines 21, sensor oscillator 266) and discloses resonators made of piezoelectric material (Column 1, line 56 and column 2, line 26) that is connected to the antenna (antenna 268) for receiving and storing the electromagnetic excitation energy from the antenna (power source 264) such that at least one acoustic signal is detected and converted into at least one electrical signal which includes sound information (output of antenna 268). Koehler et al. does not disclose the electrical signals are wirelessly transmitted back to the same receiving unit that transmitted the excitation energy or via the same antenna. Schulman et al.

discloses a device (i.e. receiving unit) (Figure 1, reference 10) which sends external energy (i.e. electromagnetic excitation energy) containing sound information wirelessly to a remote device (antenna 20 to receiver 40 of device 12) and also receives data from the remote device (12) via the same antenna (antenna 20). Schulman et al. discloses that the telemetring is used as an indicator for proper operation of the device 12. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit excitation energy and information through the same antenna in order to insure proper operation of a remote device as taught by Schulman et al.

Regarding Claim 20 Koehler et al. further discloses the piezoelectric device temporarily stores the electromagnetic excitation energy in the form of mechanical vibrations. (It is inherent that piezoelectric devices transduce electrical excitation energy into mechanical energy.)

Regarding, Claim 21, Koehler et al. further discloses the piezoelectric device stores the electromagnetic excitation energy (figure 17, source 264) such that the piezoelectric device detects the at least one acoustic signal (sound signal from sensor 266) and converts it into the at least one electrical signal (through signal transmitting antenna 268).

Regarding Claim 25, Koehler et al. further discloses pressure (i.e. acoustic waves) being measured with a diaphragm (Column 3, lines 46-49) which would inherently comprise a surface wave delay line due the physical properties of the sound waves traveling along the surface of the diaphragm.

Regarding Claim 26, Koehler et al. further discloses the piezoelectric device (Figure 17, references 264 and 266) comprises a first device for detecting the at least one acoustic signal (sensor 266) and a second device for storing the electromagnetic excitation energy (source 264) and converting the at least one acoustic signal (from sensor 266) into the at least one electrical signal (output of antenna 268).

Regarding Claim 27, Koehler et al. further discloses pressure (i.e. acoustic wave) measuring is done by using a diaphragm exposed to an environment to be measured (Column 3, lines 47-49).

Regarding Claim 30, Koehler et al. further discloses the second device (diaphragm (Column 3, lines 46-49) which would inherently comprise a surface wave delay line due the physical properties of the sound waves traveling along the surface of the diaphragm.

Regarding Claim 33, Koehler et al. further discloses the piezoelectric device receives the electromagnetic excitation energy from the receiving unit in a form of radio frequency power (i.e. short high-frequency signals) (Column 11, lines 3-8).

Regarding Claim 34, Koehler et al. further discloses the piezoelectric device receives the electromagnetic excitation energy from the receiving unit in a form of radio frequency power (i.e. periodically repeated high-frequency signals) (Column 11, lines 3-8).

Regarding Claim 35, Koehler et al. further discloses the piezoelectric device receives the electromagnetic excitation energy from the receiving unit in a form of radio

frequency power (i.e. excitation signals that have a large bandwidth-time product) (Column 11, lines 3-8).

Regarding Claim 36, Koehler et al. further discloses the piezoelectric device receives the electromagnetic excitation energy from the receiving unit in a form of a radio frequency power (i.e. continuous frequency-modulated excitation signal) (Column 11, lines 3-8).

3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler at al. as modified as applied to claim 19 above, and further in view of Palfreeman et al. (US Patent 4,065,735). Koehler et al. as modified discloses a microphone as stated above apropos of claim 19. Koehler et al. as modified further discloses a diaphragm (Column 4, lines 21-23) but does not disclose the diaphragm having an acoustic wave resonant pattern. Palfreeman et al. discloses a piezoelectric surface having acoustic surface wave resonators arranged (i.e. pattern) on the surface (Column 9, lines 53-59). Palfreeman et al. discloses that resonators can be used as filters when formed with a plate of piezoelectric material (Column 1 lines 32-57). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use acoustic wave resonant patterns on the surface to take advantage of the filtering properties as taught by Palfreeman et al.

Regarding Claim 23, Koehler et al. further discloses the diaphragm made of quartz, i.e. crystal (Column 1, line 23).

4. Claims 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler et al. as modified as applied to claim 22 above, and further in view of Stoner et al. (US Patent 6,127,768).

Regarding Claim 24, Koehler et al. as modified discloses a microphone as stated above apropos of claim 22 but does not disclose the diaphragm composed of a crystal. Stoner et al. discloses that typical piezoelectric materials include layers of $LiNbO_3$ (i.e. lithiumniobate) to support acousto-electric transduction (Column 1, lines 26-35). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a typical piezoelectric material to support acousto-electric transduction.

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler et al. as modified as applied to claim 22 above, and further in view of Stoner et al. (US Patent 6,127,768).

Regarding Claim 28, Koehler et al. as modified discloses a microphone as stated above apropos of claim 27 but does not disclose the diaphragm composed of a crystal. Stoner et al. discloses that typical piezoelectric materials include layers of $LiNbO_3$ (i.e. metal) to support acousto-electric transduction (Column 1, lines 26-35). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a typical piezoelectric material to support acousto-electric transduction.

6. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koehler et al. as modified as applied to claim 19 above, and further in view of Murase (US Patent 5,751,418).

Regarding Claim 31, Koehler et al. as modified discloses a microphone as stated above apropos of claim 19 but does not disclose an additional piezoelectric device. Murase discloses an electroacoustic transducer (Figure 1) which comprises of two piezoelectric devices (elements 52 and 50) which are differentially converted into an electrical signal (74). Murase discloses that the use of a differential amplifier removes induced noises from the electric signals (Column 1, lines 58-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use two elements and a differential signal of the two in order to reduce noise in the electric signal to produce a cleaner output.

Regarding Claim 32, Koehler et al. as modified discloses a microphone as stated above apropos of claim 19 but does not disclose compensation for disturbance variables. Murase discloses an electroacoustic transducer (Figure 1) which differentially converts the differentially converts the output of piezoelectric sensors (52 and 50) into an electrical signal (74). Murase discloses that the use of a differential amplifier removes induced noises (i.e. disturbance variables) from the electric signals (Column 1, lines 58-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use two elements and a differential signal of the two in order to reduce noise in the electric signal to produce a cleaner output.

Allowable Subject Matter

7. Claim 29 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 37 is allowed.

Response to Arguments

9. Applicant's arguments, see page 7, paragraph 2, lines 14-15; filed 30 March 2004, with respect to the rejection(s)of claim(s) 1 under 103a have been fully considered and are persuasive regarding Nedungadi fails to disclose sound information to a receiving unit. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found art.

The Office respectively disagrees with the applicant's arguments on page 6 that in Figure 17 sensor/oscillator 266 is not connected to antenna 262. Figure 17 clearly shows that sensor/oscillator 266 (although not directly) is connected to antenna 262 through reference 264.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Michalski whose telephone number is (703)305-5598. The examiner can normally be reached on 8 Hours, 5 day/week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JIM

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER